



THE UNIVERSITY *of* EDINBURGH

Edinburgh Research Explorer

Analysis of the large intestinal and faecal microbiota of horses with grass sickness using denaturing gradient gel electrophoresis

Citation for published version:

Nölkes, D, Böhnelt, H, Gessler, F, Krüger, M, Pirie, S, McGorum, B & Wernery, U 2016, 'Analysis of the large intestinal and faecal microbiota of horses with grass sickness using denaturing gradient gel electrophoresis', *Journal of equine veterinary science*, vol. 39, pp. S43.
<https://doi.org/10.1016/j.jevs.2016.02.094>

Digital Object Identifier (DOI):

[10.1016/j.jevs.2016.02.094](https://doi.org/10.1016/j.jevs.2016.02.094)

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Publisher's PDF, also known as Version of record

Published In:

Journal of equine veterinary science

Publisher Rights Statement:

Under a Creative Commons license

General rights

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact openaccess@ed.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.





Figure 2. Colt after initial treatment. Breathing pattern and its alertness improved.

its alertness improved (Figure 2). All other parameters remained similar. After definitive diagnosis of EIA the colt and his mother were isolated until a second positive Coggins test was confirmed. The foal was euthanized according to the ethical standards of animal care. Horses entry or exit at the premises were not allowed. All animals underwent serial serological sampling every 15 days for 60 days from the first case. 14 new cases were diagnosed in the same farm without clinical signs, including colt's mother. All positive animals were euthanized.



Figure 3. Lipemic blood serum with hyperbilirubinemia.

180

Analysis of the large intestinal and faecal microbiota of horses with grass sickness using denaturing gradient gel electrophoresis

D. Nölkes¹, H. Böhnelt¹, F. Gessler², M. Krüger³, R.S. Pirie⁴, B.C. McGorum⁴, U. Wernery⁵

¹Institute for Applied Biotechnology in the Tropics at the Georg-August-University, Göttingen, Germany; ²miprolab, Göttingen, Germany; ³Institute of Bacteriology and Mycology, University of Leipzig, Leipzig, Germany; ⁴Royal (Dick) School of Veterinary Studies and Roslin Institute, Easter Bush, Roslin, Midlothian, Scotland, UK; ⁵Central Veterinary Research Laboratory, Dubai, United Arab Emirates

Equine grass sickness (EGS) is a multi-system neuropathy affecting horses, characterized by degeneration of autonomic neurons and stasis of the gastrointestinal tract. Despite almost 100 years of research and the identification of numerous factors associated with disease risk, the precise etiology remains unknown. However, both historical and recent evidence supports a contributory role for *Clostridium botulinum* in disease etiopathogenesis. In this study we compared the microbiota of faeces and caecal and colonic contents from horses with EGS (n=10), control horses (n=4) and healthy co-grazing horses (n=21, only faeces) using denaturing gradient gel electrophoresis (DGGE) in an attempt to identify a profile of the microbial community characteristic of EGS. It was possible to distinguish the caecal and colonic microbiota of horses with EGS from that of control animals in cluster analysis. There was no difference in fecal microbiota between healthy and EGS affected horses; however there was a difference between horses from different premises. Our findings suggest that the change in intestinal microbiota detected in EGS is likely to be a consequence, and not the cause, of the gastrointestinal stasis.

Acknowledgement

The authors would like to thank the Dubai Millenium Research Foundation (DMRF), established and financed by H.H. General Sheikh Mohammed bin Rashid al Maktoum and administrated by Dr. Ali Ridha, Director of the Central Veterinary Research Laboratory, Dubai for funding this research.

200

Outbreak of equine Monocytic Ehrlichiosis in criollo horses

R. Scalco*, P.S. Vieira, A.C. Santos, D.P. Oliveira, V.L.C. Bueno, F.M. Pazinato, C.G. Wendt, L.O. Araujo, C.E.W. Nogueira, B.R. Curcio
Department of Veterinary Clinics - College of Veterinary - Federal University of Pelotas, Pelotas, Rio Grande do Sul, Brazil

The Equine Monocytic Ehrlichiosis (EME) is an infectious acute diarrhea caused by *Neorickettsia risticii*. Peak incidence typically occurs during summer and is usually reported in farms near creeks or rivers. EME is endemic throughout North America, however, cases occurrence have increased over the last 100 years in Brazil and Uruguay [1]. The purpose of this study is to report a number of cases of EME in Criollo horses, characterizing epidemiological and clinical features, diagnostic methods and treatment. An outbreak occurred in a farm in south Brazil, February of 2014, affecting 26 animals and resulting in 18 deaths. Five mares, average 3-5 years-old, were referred to the Veterinary Hospital of Federal University of Pelotas, presenting signs of dehydration, endotoxemia and watered, dark and fetid diarrhea. Upon initial